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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/053,344	01/17/2002	Rajendra K. Shenoy	FON103CIP	9836

7590

04/08/2004

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EXAMINER

SHRIVASTAV, BRIJ B

ART UNIT PAPER NUMBER

2859

DATE MAILED: 04/08/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/053,344

Applicant(s)

SHENOY ET AL.

Examiner

Brij B Shrivastav

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 January 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-48 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 9, 15, 18-28, 34, 40 and 43-48 is/are rejected.
- 7) ☒ Claim(s) 4-8, 10-14, 16, 17, 29-33, 35-39, 41 and 42 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Applicant's amendment dated January 21, 2004 has been received and entered.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 2, 18-27 and 43-48 are rejected under 35 U.S.C. 102(b) as being anticipated by Busse et al (Interactive Fast Spin-Echo Imaging: Magnetic Resonance in Medicine, Vol. 44, pp 339-348 (2000)).

As regards to claims 1, Busse et al clearly disclose subjecting an object for magnetic resonance imaging, which inherently exposes the object to a uniform polarizing magnetic field, orthogonal magnetic field gradients, and RF energy according to the fast-spin echo technique (column 1, page 339). Busse et al also teach application of RF energy to the object according to the driven equilibrium technique (see abstract; page 339, column 2; see theory section and figure 1; page 341, see materials and methods section). Further, Busse et al teach detection of the emitted nuclear magnetic resonance signals to be processed to provide diagnostic information on the object under consideration (figures 8 and 9; see abstract on page 339, and conclusions on page 346).

As regards to claim 26, Busse et al clearly teach subjecting an object for magnetic resonance imaging, which inherently exposes the object to a uniform polarizing magnetic field, orthogonal magnetic field gradients, and application of first 90-degree RF excitation pulse, which is followed by a sequence of 180-degree RF excitation pulses (columns 1 and 2, page 339). Further, Busse et al teach a second 90-degree excitation pulse, which is followed by a sequence of 180-degree RF excitation pulses (columns 1 and 2, page 339; see conclusions on page 346). The emitted nuclear magnetic resonance signals are detected and processed to provide diagnostic information on the object under consideration (figures 8 and 9; see abstract on page 339, and conclusions on page 346).

As regards to claims 2 and 27 Busse et al teach imaging data providing diagnostic information (figures 8 and 9).

As regards to claims 18-25 and 43-48, Busse et al teach fast spin echo technique including application of a multi-echo NMR imaging sequence (90 degree followed by 180 degrees) encoded differently and creating magnetization in the direction of polarizing magnetic field (page 339, columns 1 and 2; page 341 column 2).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.

Patentability shall not be negated by the manner in which the invention was made.

3. Claims 3, 9, 15, 28, 34, and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Busse et al (Interactive Fast Spin-Echo Imaging: Magnetic Resonance in Medicine, Vol. 44, pp 339-348, 2000) as applied to claims 1 and 26 above, further in view of Steines et al (US 2002/0147392 A1).

As regards to claims 3, 9, 15, 28, 34 and 40, Busse et al do not specifically teach of an observer viewing the visual image of a human being and making determination on the quality of the image, tagging diagnostic information. Steines et al teach of an observer viewing the visual image of a human being and making determination on the quality of the image, tagging diagnostic information (page 2, paragraphs 22-39). It would have been obvious to one of ordinary skill in the art to adapt teaching of Steines et al with the teaching of Busse et al to make the imaging process more reliable and versatile, improving image quality.

4. Claims 4-8, 10-14, 16, 17, 29-33, 35-39, 41 and ^{are} 42₁ objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brij B Shrivastav whose telephone number is 571-272-2250. The examiner can normally be reached on 7 AM to 4 PM.

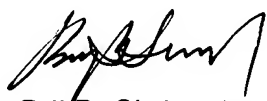
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Diego F. F. Gutierrez can be reached on 571-272-2245. The fax phone

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number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Bbs
March 20, 2004



Brij B. Shrivastav
Patent Examiner